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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/989,566	11/20/2001	Yukuo Katayama	3094-32	1185
29540	7590	01/11/2005	EXAMINER	
PITNEY HARDIN LLP			RIDLEY, BASIA ANNA	
7 TIMES SQUARE			ART UNIT	
NEW YORK, NY 10036-7311			PAPER NUMBER	

1764

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/989,566

Applicant(s)

KATAYAMA, YUKUO

Examiner

Basia Ridley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 September 2004 and 18 October 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 October 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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## DETAILED ACTION

### *Drawings*

1. The drawings were received on 18 October 2004. These drawings are acceptable.

### *Claim Rejections - 35 USC § 102*

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1-3 and 5-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Carkeek et al. (USP 2,838,388).

Regarding claim 1-2 and 5-6, Carkeek et al. discloses a method for gasification of coal wherein:

- a slurry of coal in water (11) and oxygen or air (10) are supplied to a gasification reactor (12); wherein
- the slurry of coal in water is heated (9) to thereby vaporize at least a part of the water and fed to the gasification reactor (C3/L69-C4/4); and
- gaseous oxygen or air is fed to the gasification reactor where the coal is subjected to partial oxidation and steam reforming (C1/L15-55); and
- a gasification gas (14) and slag (13) thus formed are withdrawn separately from the gasification reactor (12).
- wherein substantially all of the water is supplied in a form of steam to the gasification reactor (C3/L69-C4/4);
- wherein a water content is in a range from 27 to 50 weight % based on a total weight of the slurry (C3/L1-15);

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- wherein the coal is pneumatically transferred by steam into the gasification reactor, the steam being obtained by heating the slurry of coal in water (drawing).

Regarding claim 3, Carkeek et al. discloses all of the claim limitations as set forth above, and additionally, the reference discloses that a mixture is supplied to the gasification reactor, the mixture being obtained by heating the slurry of coal in water from 150°C to 450°C to vaporize substantially all liquid present (C3/L69-74). While the reference does not explicitly disclose said vaporization occurring at the pressure of 0.2 MPa to 11.5 MPa, since the reference disclose that there exists known temperature and pressure relationship affecting vaporization (C4/L5-7), are well known, therefore vaporization at temperatures from 150°C to 450°C to vaporize substantially all liquid present, inherently, will be performed at the pressure of 0.2 MPa to 11.5 MPa.

4. Claims 1-2 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Schlinger et al. (DE 2,044,310).

Regarding claim 1-2 and 6, Schlinger et al. discloses a method for gasification of coal wherein:

- a slurry of coal in water and oxygen or air are supplied to a gasification reactor (last paragraph on page 1, page 2 and 1<sup>st</sup> two paragraphs on page 3); wherein
- the slurry of coal in water is heated to thereby vaporize at least a part of the water and fed to the gasification reactor (last paragraph on page 1, page 2 and 1<sup>st</sup> two paragraphs on page 3); and
- gaseous oxygen or air is fed to the gasification reactor where the coal is subjected to partial oxidation and steam reforming (last paragraph on page 1, page 2 and 1<sup>st</sup> two paragraphs on page 3); and

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- a gasification gas and slag thus formed are withdrawn separately from the gasification reactor (last paragraph on page 1, page 2 and 1<sup>st</sup> two paragraphs on page 3).
- wherein substantially all of the water is supplied in a form of steam to the gasification reactor (last paragraph on page 1, page 2 and 1<sup>st</sup> two paragraphs on page 3);
- wherein the coal is pneumatically transferred by steam into the gasification reactor, the steam being obtained by heating the slurry of coal in water (last paragraph on page 1, page 2 and 1<sup>st</sup> two paragraphs on page 3).

***Claim Rejections - 35 USC § 102 or 35 USC § 103***

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
6. Claim(s) 4 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Carkeek et al. (USP 2,838,388).

Regarding claims 4, Carkeek et al. discloses all of the claim limitations as set forth above. Additionally, while the reference does not explicitly disclose a heating medium having temperature of 200°C to 600°C used to heat the slurry of coal and water, as slurry of coal and water is heated in an indirect heat exchanger (C3/L62-C4/L4), said indirect heat exchanger will, inherently, comprise heating medium that appears to be the same as, or an obvious variant of the heating medium set forth in the instant claim.

Further the examiner notes that the specific temperature of the heating medium used in the indirect heat exchanger (9) is not considered to confer patentability to the claims. As the temperature to which the coal and water slurry is preheated in the indirect heat exchanger (9) is a variable that can be modified, among others, by adjusting said temperature of the heating medium used in the indirect heat exchanger (9), with said temperature to which the coal and

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water slurry is preheated increasing as the temperature of the heating medium is increased, the precise temperature of the heating medium would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the claimed temperature of the heating medium cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the temperature of the heating medium in the process of Carkeek et al. to obtain the desired temperature to which the coal and water slurry is preheated (*In re Boesch*, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (*In re Aller*, 105 USPQ 223).

***Claim Rejections - 35 USC § 103***

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
8. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schlinger et al. (DE 2,044,310).

Regarding claims 3-4 Rich, Jr. in view of Schlinger et al. disclose all of the claim limitations as set forth above. Additionally Schlinger et al. discloses the process wherein the gasifier operates at a pressures of 0.2 MPa to 11.5 MPa and wherein said coal and water slurry is preheated to a predetermined temperature necessary to vaporize water in the slurry and fed directly to the gasifier (last paragraph on page 1, page 2 and 1<sup>st</sup> two paragraphs on page 3). Further the reference discloses that increasing the coal and water slurry temperature before charging into the gasifier reduces the heat burden on the gasifier and improves the utilization of the coal and oxygen (2<sup>nd</sup> paragraph on page 5), but the reference does not explicitly disclose said

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coal and water slurry being preheated to a temperature of 150°C to 450°C by a heating medium having temperature of 200°C to 600°C.

The specific temperatures to which said coal and water slurry is preheated or the temperatures of the heating medium are not considered to confer patentability to the claims. As the reduction of the heat burden on the gasifier and improvements in the utilization of the coal and oxygen are variables that can be modified by adjusting the temperatures to which said coal and water slurry is preheated (as set forth above), the precise temperatures to which said coal and water slurry is preheated, and therefore the temperature of the medium used for said preheating, would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the claimed temperatures to which said coal and water slurry is preheated, or temperatures of medium used for such preheating, cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the temperatures to which said coal and water slurry is preheated, and at the same time the temperature of the medium used for such preheating, in the process of Schlinger et al., including slurry being preheated to a temperature of 150°C to 450°C by a heating medium having temperature of 200°C to 600°C, to improve the gasifier operation and efficiency (*In re Boesch*, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (*In re Aller*, 105 USPQ 223).

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schlinger et al. (DE 2,044,310) in view of Carkeek et al. (USP 2,987,387).

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Regarding claim 5, Schlinger et al. discloses all of the claim limitations as set forth above. Additionally, while the reference does not explicitly disclose specific water content of feed stream to the gasifier, the reference does state that a particularly effective method for dispersing powdered solid fuel in vapor is described in USP 2,987,387 (see page 3, lines 8-9).

Carkeek et al. discloses a method for dispersing powdered solid fuel in vapor, wherein said dispersed solid fuel is used in a gasifier to generate gas by partial oxidation and steam reforming, and wherein a water content is in a range from 27 to 50 weight % based on a total weight of the slurry. Further, the reference discloses that such slurry concentration is necessary to form a pumpable mixture (C2/L18-30).

It would have been obvious to one having ordinary skill in the art at the time of the invention to use in a process disclosed by Schlinger et al. a slurry having a water content in a range from 27 to 50 weight % based on a total weight of the slurry, as taught by Carkeek et al., for the purpose of providing a pumpable slurry.

#### ***Response to Arguments***

10. Applicant's arguments filed on 7 September 2004 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Conclusion***

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after



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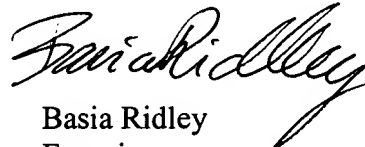
the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner Basia Ridley, whose telephone number is (571) 272-1453.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola, can be reached on (571) 272-1444.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Technical Center 1700 General Information Telephone No. is (571) 272-1700. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Questions on access to the Private PAIR system should be directed to the Electronic Business Center (EBC) at (866) 217-9197 (toll-free).



Basia Ridley  
Examiner

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BR

January 9, 2005